Remarks

Reconsideration of this application is requested. Claims 1, 5-16 have been amended and claims 2-4 have been canceled by this response. Claims 1 and 5-20 remain in the patent application.

Response to the 35 U.S.C. §101 rejection

The Office Action rejected claims 1-13 under 35 U.S.C. §101 as reciting a use without any active, positive steps delimiting how this use is actually practiced. To make the claims not read as method claims, elements have been added to the claims. For instance, claim 1 now recites both a processor and an Orthogonal Frequency-Division Multiplexing (OFDM) transmitter. Dependent claims 5-10 also recite the OFDM transmitter. Likewise, claim 11 now recites both a transceiver and a processor having a puncture block. Applicant believes the amended language of these claims is sufficient to show the blocks and elements that actively provide the functionality of the claims.

Response to the 35 U.S.C. §112, second paragraph, rejection

The Office Action rejected claims 1-13, 15 and 16 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In particular, claim 1 was interrupted as a process claim and as a "single means" claim. Claim 1 has been amended to overcome this rejection.

In claims 6, 7, 9, 10, 12 and 13 the Office Action states that it is not clear if the target or source node are elements of the claimed communication system. The preamble of claims 6, 7, 9, and 10 has been recast from a "system" to recite a single "device". Further, the claims were amended to include the OFDM transmitter that is active to perform the puncture of the subcarrier. Claims 12 and 13 were also amended by including a puncture block that punctures the subcarrier. It is believed that these changes to the claims make the claims clear and are sufficient to overcome the 35 U.S.C. §112, second paragraph, rejection.

The Examiner states that in claim 11 "the source node" has insufficient antecedent basis. This is unclear, but the antecedent basis for the elements in claim 11 is believed to be correct.

Response to the 35 U.S.C. §102(b) Rejection

The Office Action rejected claims 1-19 under 35 U.S.C. §102(b) as being anticipated by Konschak (EP Patent No. 1065855 A1).

CLAIMS 1-10

Applicant's amended claim 1 recites: A multicarrier communication system, comprising: a processor having an Orthogonal Frequency-Division Multiplexing (OFDM) transmitter that uses channel knowledge of a communication link received in a previous preamble to select a subcarrier to puncture prior to transmission.

Konschak teaches a communication apparatus 9 in FIG. 4 having a comparing means 13 to obtain differences between a received reference symbol and an expected reference symbol. The differences obtained reflect the delay properties of the transmission channel due to multipath and signal propagation. A profile extracting means 14 and a threshold detecting means 15 detect an upper and a lower threshold value in the received channel delay profile. The upper threshold value is determined to be a peak value of the strongest path in the channel. An estimating means 16 then estimates a maximum delay value between the highest and the lowest channel response peak.

Konschak teaches an estimating means 16 that estimates an excess delay value t_{max} as the time value between the strongest transmission path and the weakest echo above the lower threshold value (see column 8, lines 45-54). The delay value estimate is supplied to a setting means 17 which sets the length value for the cyclic extensions on the basis of the received delay value (see column 9, lines 7-10).

Thus, Konschak teaches that a channel profile is extracted and used to set the length of the cyclic extensions when OFDM data is transmitted. Applicant's amended claim 1 recites that channel knowledge of a communication link received in a previous preamble is used to select a subcarrier to puncture prior to transmission. Konschak calculates a cyclic extension to reduce overhead and maintain transmission quality (column 3, lines 5-14).

Whereas Applicant's claim 1 recites using channel knowledge of a communication link received in a previous preamble, Konschak only uses an extracted channel profile from the current received information to calculate a length for the cyclic extensions. Whereas Applicant's claim 1 recites using channel knowledge of a communication link received in a previous preamble to select a

subcarrier to puncture prior to transmission, Konschak does not use the extracted channel profile (the channel knowledge) to alter the signal prepared for transmission. Instead, Konschak uses the extracted channel profile to extend the length of the cyclic extensions. And certainly since the cited reference does not teach puncturing, Konschak does not use the extracted channel profile to select a subcarrier to puncture a subcarrier prior to transmission as Applicant's claim 1 recites.

Accordingly, the cited reference of Konschak is deficient in teaching Applicant's claim 1 and the reference should be withdrawn. Applicant's claims 5-10 depend from independent claim 1 and are believed to be allowable over the art of record for at least the same reasons as claim 1. Further, dependent claims 5-10 provide additional limitations about puncturing which is not taught by Konschak. Per this response, claims 2-4 have been canceled and the rejection of these claims is now moot.

CLAIMS 11-16

Applicant's amended independent claim 11 recites: A communications device comprising a transceiver and a processor having a puncture block that receives channel knowledge of a subcarrier channel in a prior preamble that is used to select a subcarrier to puncture prior to transmission by the transceiver.

Again, Applicant's claim 11 recites several features not taught or suggested by the art of record. One feature not found in Konschak's patent that is a feature recited in Applicant's claim 11 is a puncture block that receives channel knowledge of a subcarrier channel in a prior preamble. Further, Applicant recites a subcarrier is selected to puncture prior to transmission by the transceiver. Again, Konschak only uses an extracted channel profile from the current received information to calculate a length for future cyclic extensions. Konschak does not anticipate using channel information for puncturing.

Since the relied upon reference of Konschak does not use channel information as recited in Applicant's claim 11 and since Konschak does not teach puncturing, the reference should be withdrawn and Applicant's claim 11 allowed. Claims 12-16 depend from independent claim 11 and also recite puncturing which further differentiate Applicant's dependent claims form the relied upon Konschak reference.

CLAIMS 17-19

Applicant's amended independent claim 17 recites, among other things, a processor coupled to the at least one receiver chain to select a subcarrier to puncture prior to transmission based on channel knowledge of a communication link. Applicant believes that it has been shown that the relied upon reference of Konschak is deficient in showing all features of Applicant's claim, namely, the selection of a subcarrier to puncture. Therefore, it is believed that base claim 17 and dependent claims 18-20 are allowable over this reference and that the rejection should be withdrawn.

Conclusion

The foregoing is submitted as a full and complete response to the Office Action mailed March 12, 2007. It is submitted that claims 1 and 5-20 are in condition for allowance and allowance of these claims is earnestly solicited.

Should it be determined that an additional fee is due under 37 CFR §§1.16 or 1.17, or any excess fee has been received, please charge that fee or credit the amount of overcharge to deposit account #50-0221.

If the Examiner believes that there are any informalities which can be corrected by an Examiner's amendment, a telephone call to the undersigned at (480) 715-5388 is respectfully solicited.

Respectfully submitted,
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